1,166,842

PATENT SPECIFICATION

DRAWINGS ATTACHED

1,166,842

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COMPLETE SPECIFICATION

An improved Reel for Coilable Materials

We, A. G. DEAN MANUFACTURING ENGINEERS LIMITED, of Station Road, Hook, in the County of Hampshire, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to reels for coilable material and is directed more particularly, although not exclusively, to reels for hoses, cables and the like.

As is well known, such reels have the coilable material wound upon the outer surface of the reel, with the convolutions of the material lying close to or touching one another and an object of the present invention is to provide such a reel having power-operated means to rewind the coilable material which has been dispensed from the reel.

The present invention consists in a reel for coilable material comprising, a rotatable drum which is adapted to have the material coiled onto its periphery, power-operated means operatively connected to the drum to rewind any of the material which has been dispensed from the drum, means for disconnecting the power operated means from the drum, when required, to enable the material to be dispensed from the drum and manual rewind means including a bevel wheel coaxially mounted on said drum and a pinion which is capable of being meshed, when required, with the bevel wheel.

In the accompanying drawings:—

Figure 1 is a front elevation of a reel according to the present invention,

Figure 2 is a side elevation of the reel shown in Figure 1 and

Figure 3 is a plan view of Figure 1 showing a manual rewind handle in position.

In carrying the invention into effect according to one convenient mode by way of example, the reel comprises a metal drum or cylinder 10 having a circular closure plate 11, 11*a* at each end which extends beyond the drum 10 to act as retaining members for the hose (not shown) wound on the surface thereof. If desired, the surface of the drum 10 may be provided with a helical rib to facilitate the positioning of the hose on the reel.

The drum 10 is mounted on a hollow shaft 12, the axis of which coincides with the axis of rotation of the drum 10, and the end of the shaft 12 is rotatably mounted on a spigot 13 integral with a hollow stationary spindle 14, the entry to which is internally threaded at 15 to act as the fluid inlet 16.

A collecting head 17, bored at 18 to communicate with the interior of the spindle 14, is rotatably mounted on the spindle 14 and has an outlet duct 19 which passes through one of the circular closure plates 11 to provide a connection 20 for the hose. Spaced 'O'-rings 21 form a liquid-tight seal between the spindle 14 and collecting head 17.

A vee-pulley 22 is co-axially mounted on the outer surface of the other closure plate 11*a* of the drum and the hollow shaft 12 passes through the centre thereof and is supported by a cover plate 23 for the drive mechanism hereinafter referred to.

The drive mechanism comprises an electric motor 25, the armature shaft 26 of which is connected through a flexible coupling 27 to a reduction gearbox 28. The output shaft 29 of the gearbox 28 has a vee-pulley 30 fixedly mounted thereon and a vee-belt 31 passes around both the drum pulley 22 and gearbox pulley 30. Preferably, the electric motor 25 is connected to the bottom of a vehicle on which the reel is mounted.

The vee-belt 31 is tensioned by a roller 32 rotatably mounted on an eccentric spindle 33 which is connected to a shaft 34 rotatably mounted in a boss 35 extending inwardly from the cover plate 23. The end of the shaft 34 remote from the roller 32 has a handle 36 fixedly mounted thereon which, when moved through 180° from the position shown in

Figures 1 and 2, releases the belt tension to enable the hose to be pulled freely off the drum 10.

The handle 36 is capable of positi ning the tension roller 32 in the required position and an adjustable cam-shaped stop 37 is also provided which limits the movement of the handle 36 and enables a predetermined tension to be applied to the belt so that slip occurs at the adjusted setting.

In an alternative arrangement, the diameter of the roller 32 is increased to that it is capable of simultaneously engaging the peripheries of the pulleys 22 and 30. It will be readily seen that this provides a friction drive from the pulley 30 to the pulley 22.

The roller 32 may be mounted for linear or arcuate movement into engagement with the peripheries of the pulleys 22 and 30, and if desired, the surfaces of the latter may be flat instead of 'Vee'-shaped in cross section.

A bevel wheel 38 is concentrically mounted on the vee-pulley 22 attached to the drum 10 and a pinion 39 meshes with the wheel 38. The pinion shaft 40 is rotatably mounted in a boss 41 extending inwardly from the cover plate 23 and is adapted to be rotated by a handle 42 (Figure 3) which is insertable in the boss 41. The bevel wheel 38 and pinion 39 arrangement enable the drum 10 to be hand-operated in the event of an emergency. As will be seen from Figure 3, the pinion 39 is normally held out-of-mesh with the bevel wheel 38 by a spring 43 interposed between the boss 41 and a flange 44 on the pinion shaft 40. Insertion of the handle 42 overcomes the spring pressure and meshes the pinion 39 with the bevel wheel 38.

WHAT WE CLAIM IS:—

1. A reel for coilable material comprising a rotatable drum which is adapted to have the material coiled onto its periphery, power-operated means operatively connected to the drum to rewind any of the material which has been dispensed from the drum, means for disconnecting the power operable means from the drum, when required, to enable the material to be dispensed from the drum, and manual rewind means including a bevel wheel coaxially mounted on said drum and a pinion which is capable of being meshed, when required, with the bevel wheel.

2. A reel for coilable material as claimed in claim 1, wherein the power-operated means includes a pulley co-axially mounted on said drum a further pulley connected to driving means, and a belt passing around both pulleys.

3. A reel for coilable material as claimed in claim 2, wherein the means for disconnecting the power operated means from the drum is adapted to release the tension of said belt.

4. A reel for coilable materials as claimed in claim 3, wherein said disconnecting means includes an eccentrically mounted roller which is movable away from said belt to release the tension thereof.

5. A reel for coilable materials as claimed in claim 4, including an adjustable stop which limits the movement of said roller and enables a predetermined tension to be applied to the belt so that slip occurs at the adjusted setting.

6. A reel for coilable material as claimed in any one of claims 2 to 5, wherein said driving means includes an electric motor operatively connected to a gearbox, the output shaft of which has said further pulley mounted thereon.

7. A reel for coilable materials as claimed in any one of the preceding claims, wherein said pinion is normally spring-urged away from said bevel wheel, but is meshed therewith upon the engagement of a turning handle with a shaft upon which the pinion is mounted.

8. A reel for coilable materials as claimed in any one of the preceding claims, wherein the drum is mounted on a hollow shaft having one end rotatably mounted on a spigot integral with a hollow stationary spindle, the entry to which is internally threaded to act as a fluid inlet.

9. A reel for coilable materials as claimed in claim 8, wherein a collecting head which communicates with the interior of said spindle and is rotatably mounted thereon has an outlet duct which provides a connection for a hose.

10. A reel for coilable materials as claimed in claim 9, wherein spaced 'O'-rings form a liquid-tight seal between the spindle and the collecting head.

11. A reel for coilable material as claimed in claim 1, wherein the power-operated means includes a pulley coaxially mounted on said drum, a further pulley connected to driving means, and a roller which is capable of simultaneously engaging the peripheries of said pulleys to effect a friction drive therebetween.

12. A reel for coilable materials substantially as described with reference to the accompanying drawings.

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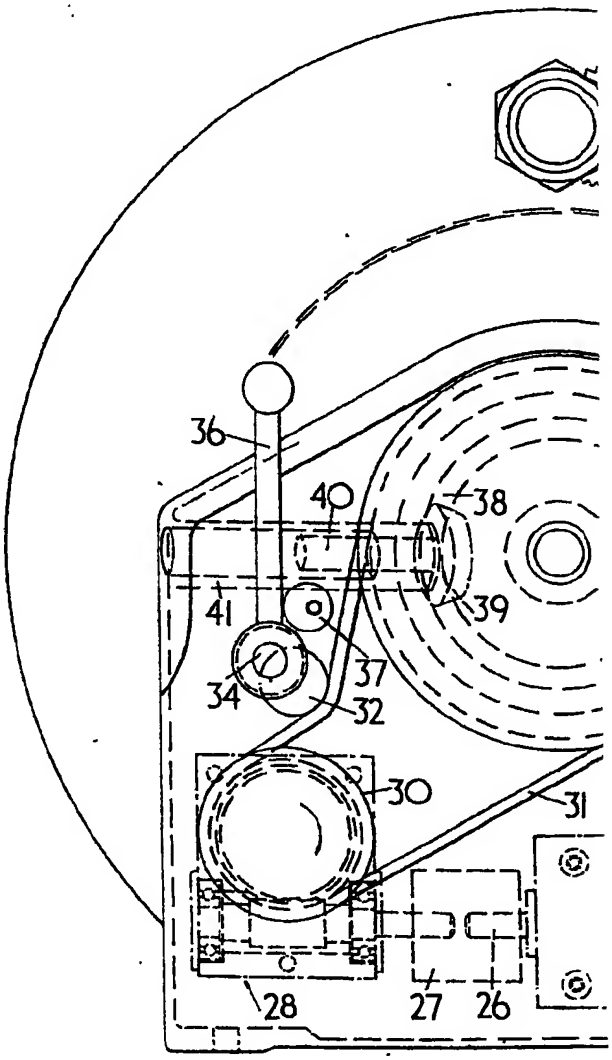
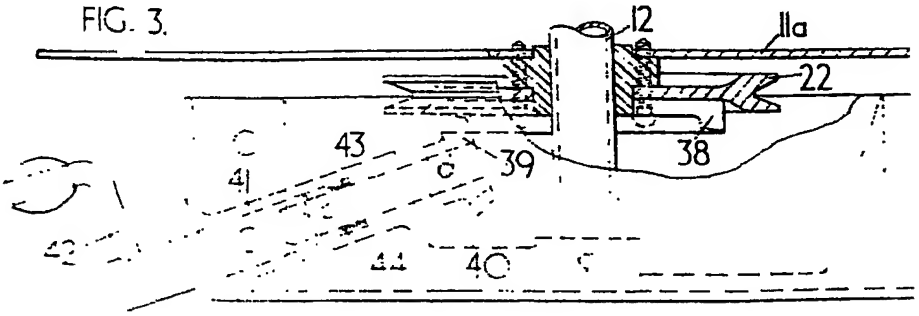


FIG. 3.



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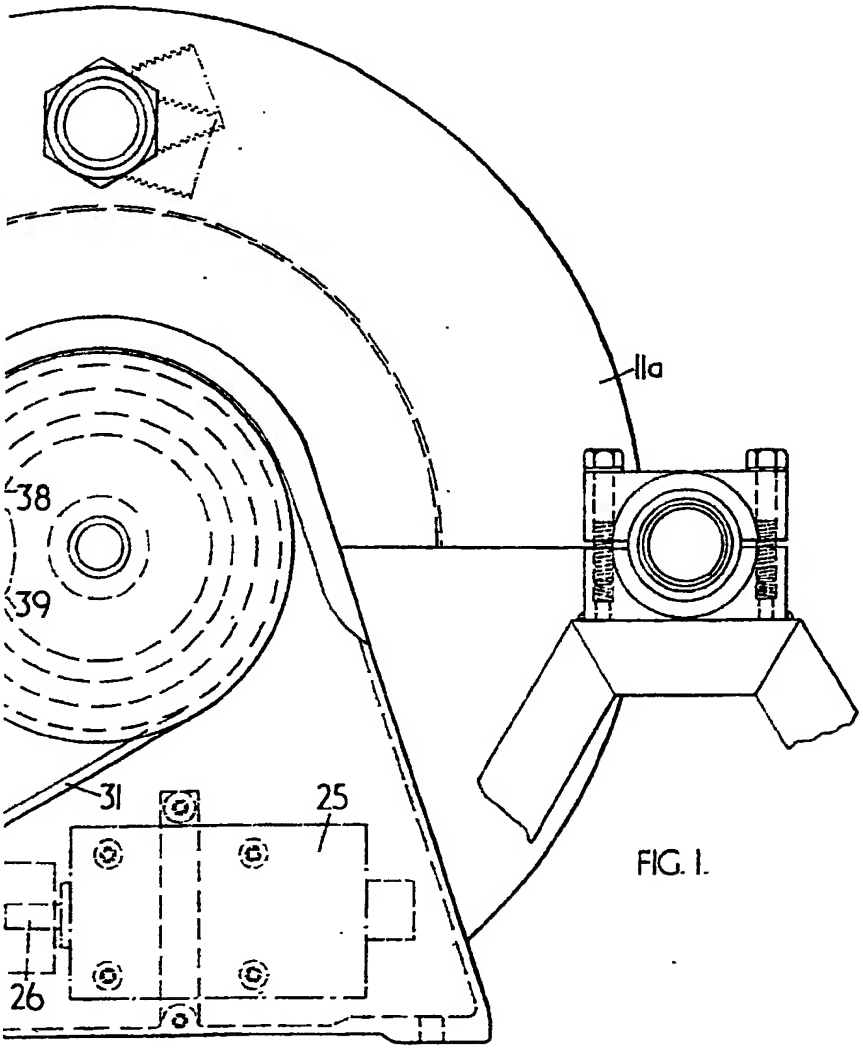
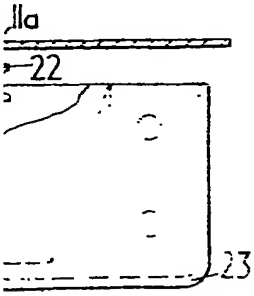


FIG. 1.



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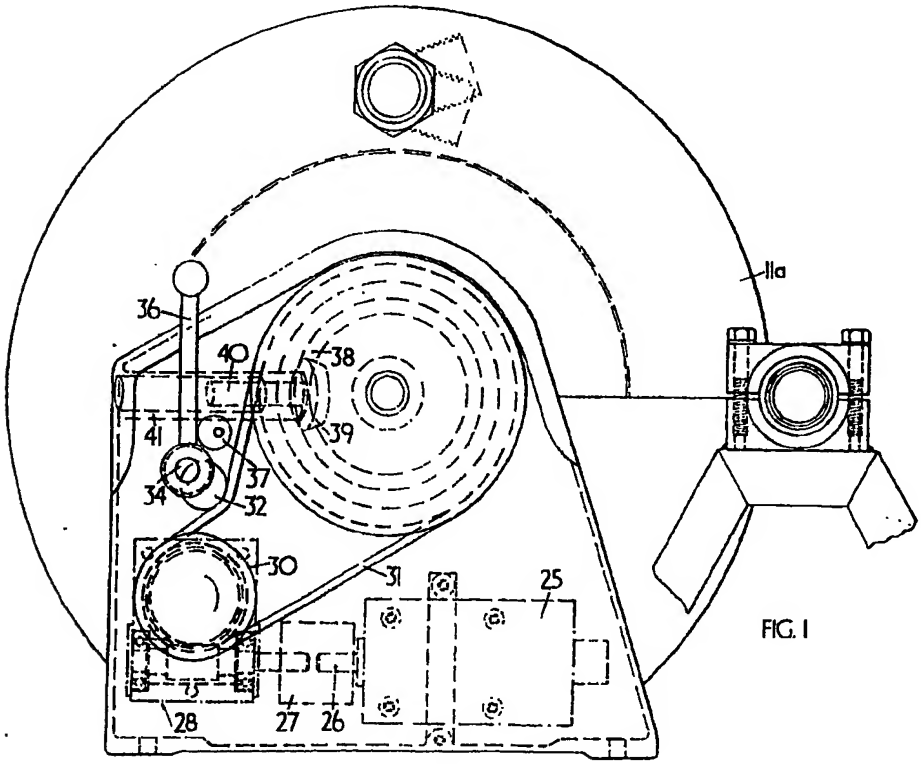
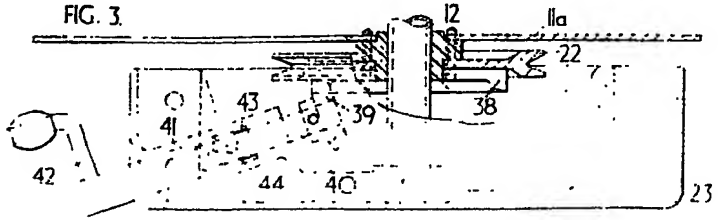


FIG. 1

FIG. 3.



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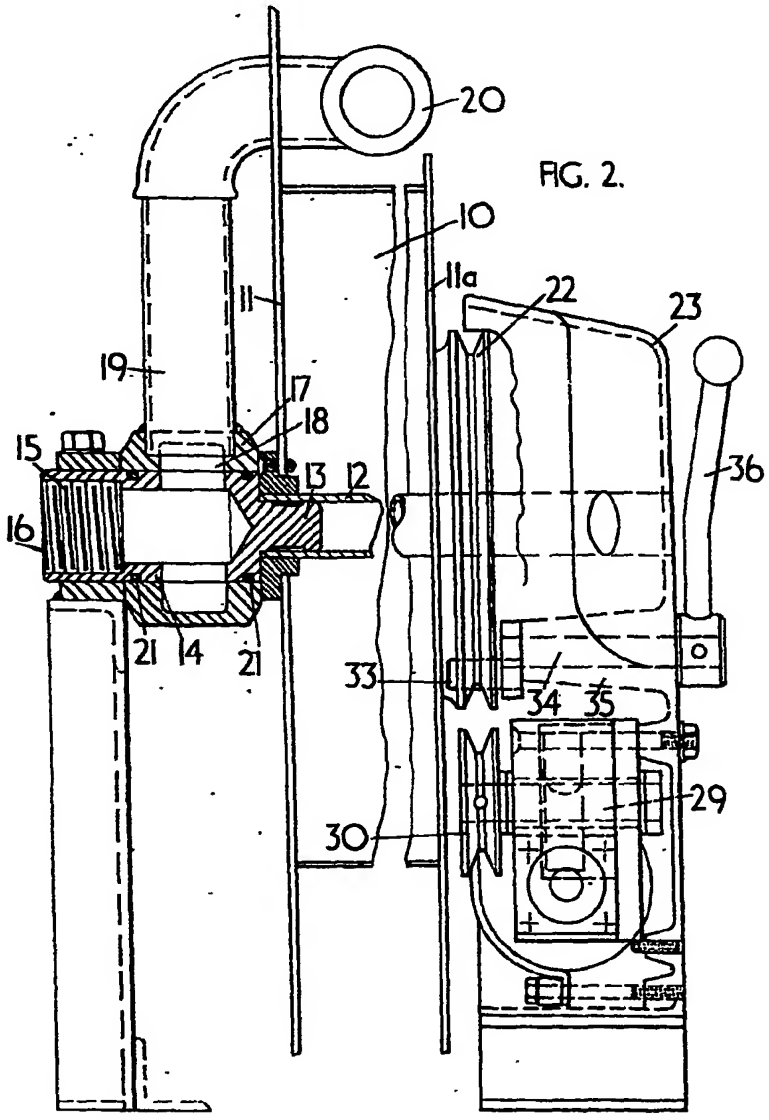

FIG. 2.